

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

CORRECTED VERSION

(19) World Intellectual Property Organization  
International Bureau(43) International Publication Date  
15 September 2005 (15.09.2005)

PCT

(10) International Publication Number  
WO 2005/085470 A1(51) International Patent Classification:  
C07D 473/18 (2006.01) C12Q 1/48 (2006.01)(21) International Application Number:  
PCT/EP2005/050900

(22) International Filing Date: 1 March 2005 (01.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
04405124.1 2 March 2004 (02.03.2004) EP(71) Applicant (for all designated States except US): EPFL  
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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

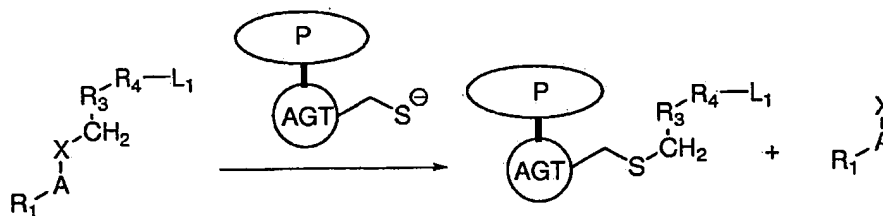
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(48) Date of publication of this corrected version:  
5 October 2006(15) Information about Correction:  
see PCT Gazette No. 40/2006 of 5 October 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SPECIFIC SUBSTRATES FOR O<sup>6</sup>-ALKYLGUANINE-DNA ALKYLTRANSFERASE

(57) Abstract: The invention relates to substrates for O<sup>6</sup>-alkylguanine-DNA alkyltransferases (AGT) of formula R<sub>1</sub>-A-X-CH<sub>2</sub>-R<sub>3</sub>-R<sub>4</sub>-L<sub>1</sub>, wherein A is a group recognized by AGT as a substrate, X is oxygen or sulfur, R<sub>1</sub> is a group -R<sub>2</sub>-L<sub>2</sub> or a group R<sub>5</sub>, R<sub>2</sub> and R<sub>4</sub> are, independently of each other, a linker, R<sub>3</sub> is an aromatic or a heteroaromatic group, or an optionally substituted unsaturated alkyl, cycloalkyl or heterocyclyl group with the double bond connected to CH<sub>2</sub>, R<sub>5</sub> is arylmethyl or heteroaryl methyl or an optionally substituted cycloalkyl, cycloalkenyl or heterocyclyl group, L<sub>1</sub> is a label, a plurality of same or different labels, a bond connecting R<sub>4</sub> to A forming a cyclic substrate, or a further group -R<sub>3</sub>-CH<sub>2</sub>-X-A-R<sub>1</sub>, and L<sub>2</sub> is a label or a plurality of same or different labels. The invention further relates to methods of transferring a label from these substrates to O<sup>6</sup>-alkylguanine-DNA alkyltransferases (AGT) and AGT fusion proteins.

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